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Comm'r of Patents v. *Deutsche Gold-Und-Silber-Scheideanstalt Vormals Roessler*, 397 F.2d 656 (D.C. Cir. 1968) 18

Cuno Engineering Corp v. *Automatic Devices Corp.*, 314 U.S. 84 (1941) 7

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Ex parte Packard, 140 U.S.P.Q. 27 (Pat. Off. Bd. App. 1963) 22

Ex parte Symons, 134 U.S.P.Q. 74 (Pat. Off. Bd. App. 1962) 22

Great Atlantic & Pacific Tea Co. v. *Supermarket Equipment Corp.*, 340 U.S. 147 (1950) 7

Hotchkiss v. *Greenwood*, 52 U.S. 248 (1850) 7

In re Benson, 441 F.2d 682 (C.C.P.A. 1971) 8

In re Bernhart, 417 F.2d 1395 (C.C.P.A. 1969) 8

In re Foster, 438 F.2d 1011 (C.C.P.A. 1971) 8

In re Mahoney, 421 F.2d 742 (C.C.P.A. 1970) 8

In re McIlroy, 442 F.2d 1397 (C.C.P.A. 1971) 8

In re Musgrave, 431 F.2d 882 (C.C.P.A. 1970) 8

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In re Prater, 415 F.2d 1378 (C.C.P.A. 1968), *modified on rehearing*, 415 F.2d 1393 (C.C.P.A. 1969) 8, 10

In re Tarczy-Hornoch, 397 F.2d 856 (C.C.P.A. 1968) 22

In re Waldbaum, 457 F.2d 997 (C.C.P.A. 1972) 8

Loom Co. v. *Higgins*, 105 U.S. 580 (1882) 7

Mazer v. *Stein*, 347 U.S. 201 (1954) 24

Vacheron & Constantine-LeCoultre Watches, Inc. v. *Benrus Watch Co.*, 260 F.2d 637 (2d Cir. 1958) 26

Washburn & Moen Manufacturing Co. v. *Beat 'Em All Barbed-Wire Co.*, 143 U.S. 275 (1892) 7

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Rich, *The Vague Concept of "Invention" as replaced by Section 103 of the 1952 Patent Act*, 8 (Conf. No.) IDEA 136 (1964) 17

Ringer & Gitlin, *Copyrights* (rev. ed. 1965) 26

IN THE

Supreme Court of the United States

OCTOBER TERM 1971

No. 71-485

ROBERT GOTTSCHALK, COMMISSIONER OF PATENTS,
Petitioner,

v.

GARY R. BENSON AND ARTHUR C. TABBOT,
Respondents.

ON WRIT OF CERTIORARI TO THE
UNITED STATES COURT OF CUSTOMS AND PATENT APPEALS

BRIEF AMICUS CURIAE FOR THE AMERICAN PATENT LAW ASSOCIATION

I.

THE NATURE AND THE INTEREST OF THE AMICUS

A. The American Patent Law Association

This brief *amicus curiae* is submitted by the American Patent Law Association ("APLA")[1] under Rule 42(2) of this Court. Letters from the parties' counsel, consenting to the filing of this brief, are on file with the Clerk of this Court.

[1] APLA's membership-at-large elects the officers and others who form APLA's 20-member governing body, the Board of Managers. The filing of this brief on behalf of APLA has been authorized by the Board of Managers and approved by its Executive Committee.

APLA is a nationwide association of over 3,800 members. Its members include judges, law teachers, copyright and trademark lawyers, and over half the patent lawyers in the country from private, corporate, and government practice — persons interested in the intellectual property law of patents, trademarks, copyrights, and related antitrust.

Unlike some specialties of law practice where the plaintiffs and defendants are often represented by predominately separate legal fraternities, in patent law the same individual attorneys may appear as often on the plaintiff's side as on the defendant's side of patent infringement and trade secret suits, and on either the licensor or licensee side of negotiations for patent, trademark, trade secret, and know-how licenses. By such balance of experience and membership, this association considers itself well balanced in the realities of the patent law in action.

B. Interest of the Amicus

APLA has no interest in and takes no position with respect to the patentability of the particular invention of respondents' pending patent application.

APLA presents no position as to claim form or claim construction.

APLA is deeply concerned that the briefs of the *amici* who are computer hardware manufacturers and of the association of such manufacturers (hereinafter "Hardware Manufacturer Amici") advocate a sweeping rule of law of nonpatentability of nonobvious processes where such processes are capable of being practiced on a computer.

Perhaps more grave, various of the briefs in support of the petitioner present to the Court alleged statements concerning the functioning of the patent system which APLA feels are grossly erroneous as a basis for this or any other patent case.

II.

SUMMARY OF THE ARGUMENT

(1) The issue here is not whether a computer *program* is patentable, but whether a *process* — which may be performed by a general-purpose computer wired by the technique of programming — may be patented, assuming arguendo that it is within the useful arts and is new, useful, and nonobvious.

(2) The Constitution, Congress, and experts on the subject have found the patent system effective to promote the progress of the useful arts. In effect, there is Constitutional Finding of Fact, and a Congressional Finding of Fact, that the patent system is effective to promote the progress of the useful arts.

(3) At least some computerized processes are within the useful arts, and are also new, useful and nonobvious.

(4) Congress has expressly defined patentable processes as including new uses of known machines. 35 U.S.C. § 100(b). There is no basis for excluding a process from that statutory definition merely because the machine upon which the process is implemented is a computer.

(5) If there is to be a carving out of *some* useful arts or new uses of *some* known machines for a new nonpatentable class, the carving out from the present statutory classes should be done by Congress.

(6) The patent system is based on sound public policy; accordingly, it merits correspondingly fair treatment by the courts.

(7) The incentive to disclose, which incentive is fostered by the patent system, is desperately needed with re-

spect to processes performable on general-purpose computers.

(8) A new, useful, and nonobvious invention — whether or not it is a process performed by a general-purpose computer — is not and never was *de facto* in the public domain. It adds to, and does not subtract from, that which the public was previously enjoying.

(9) There are a number of alleged issues that have been urged upon this Court but that are not relevant to the *legal* determination of whether a programmable process can ever be patented. Those non-issues are:

(a) The status of the Patent Office's collection and classification of the relevant prior art.

(b) The status of foreign patent laws.

(c) The status of related (but different, and questionable) copyright protection.

(d) The status of private and bar committee suggestions about what the law *ought* to be.

III.

ARGUMENT

A. Identification of the Issues

This *amicus* takes no position on the form of the claims in the patent application in suit. But the disclosure and claims of the application are directed to an invention which is a process for using a computer to do a useful and often tedious technological task, converting binary coded decimals ("BCD") to binary numbers; and that invention identifiable from the whole of the application is the invention to which this brief is directed.

There was no Patent Office rejection for obviousness. The Benson and Tabbot invention *as a whole*, which to this *amicus* includes the broad Benson and Tabbot concept of how to convert BCD to binary and also the specific computer process described in the application for patent to implement that concept, is for purposes of this record conceded to be nonobvious from what was old.

The computer in accord with the invention operates differently from that same computer when used by the John Doe prior art way to convert BCD to binary numbers — differently from the same computer when used by the Richard Roe prior art way to convert BCD to binary numbers.

Being both new and nonobvious to those of ordinary skill in the art at the time the invention was made, it also was not yet then within the reach of the public to enjoy — for the public did not know how to operate a computer by the Benson and Tabbot process.

Regardless of what it may be called, application of law of nature or process performable on a machine, the Benson

and Tabbot process was not, *de facto*, in the public domain. The question is whether it is *de jure* in the public domain.

When nonobviousness is assumed, it must be on the record before this Court, it is clear that the following premise applies:

> Though the computer programmed in a new way
> operates in one sense
> as its designers intended,
> it operates in another sense
> differently from the way
> anybody had ever operated it before.

This difference in mode of operation is a process that is a useful art — it gets man's tedious job done for him better than before.

The first issue which this *amicus* joins with the briefs on file is:

> Whether progress in *this* useful art,
> as in others,
> is promoted by securing to inventors,
> for limited times,
> exclusive rights to their
> new, useful and nonobvious inventions.

Amicus develops that both the Constitution (art. I, § 8, cl. 8) and the Congress (Title 35, U.S.C.) have answered that question in the affirmative, then proceeds to the second issue:

> Whether there is anything special
> in new, useful, and nonobvious processes
> performable on a computer
> which renders that affirmative answer
> inapplicable to such processes.

Phrased differently:

> Whether a process
> fully meeting the criteria of Title 35, U.S.C.
> may be deprived of its patentability
> merely because
> it is capable of being implemented
> (or perhaps can *only* be practically
> implemented) by a computer.

The real issue does not turn on whether there is a law of physics, chemistry, mathematics, or other law of nature involved. All inventions are applications of laws of nature. There can be no other kind of invention.

The issue does not turn on whether the computer operates consistently with the builder's design, such that the invention is nothing but a new use of an old thing, nor on whether this invention is merely a combination of old process steps. All inventions are nothing but new uses of old things, or combinations of old parts, materials or steps.

The Congress examined and discarded those factors as criteria for patentability, found them incapable of consistent guidance to bench or bar, and in 1952 enacted the nonobviousness standard[3] in lieu of prior standards.

---

[3] Supreme Court opinions of prior years had used many expressions of the standard of patentability. In *Hotchkiss* v. *Greenwood*, 52 U.S. 248 (1850), the phrase was "ingenuity and skill" possessed by "an ordinary mechanic acquainted with the business." In *Cuno Engineering Corp.* v. *Automatic Devices Corp.*, 314 U.S. 84 (1941), the expression was "flash of genius." In *Great Atlantic & Pacific Tea Co.* v. *Supermarket Equipment Corp.*, 340 U.S. 147 (1950), synergism was required in language about the whole must equal more than the sum of its parts — which, by basic physics, is of course an impossibility. The 1952 code's choice of "obviousness to those of ordinary skill in the art" was the choice also found in *Loom Co.* v. *Higgins*, 105 U.S. 580, 591, (1882), quoted with approval in *Washburn & Moen Manufacturing* v. *Beat Em All Barbed-Wire Co.*, 143 U.S. 275 (1892).

Of that, more later. Suffice here to say that those alleged bases for judgment of the issue of patentability are not the issues; they only obscure and conceal the issue.

Patents have never been asserted as appropriate for computer programs as such, but only for useful processes, including those which may be performable on computers, and for computers in the program-wired state, when those processes and wired-states are new, useful, and nonobvious.

The series of "computer program" cases on the books, all decided by the Court of Customs & Patent Appeals, is limited. It includes *In re Prater*, 415 F.2d 1378 (1968), *modified on rehearing*, 415 F.2d 1393 (1969); *In re Bernhart*, 417 F.2d 1395 (1969); *In re Mahoney*, 421 F.2d 742 (1970); *In re Musgrave*, 431 F.2d 882 (1970); *In re Foster*, 438 F.2d 1011 (1971); *In re Benson*, 441 F.2d 682 (1971); *In re McIlroy*, 442 F.2d 1397 (1971); and *In re Waldbaum*, 457 F.2d 997 (1972).

Those cases enunciated two general legal conclusions dictated by the language of the statute:

(1) that programmed computers and the processes by which they operate, when in the "useful arts," are within the statutory classes of patentable inventions, i.e., machines and processes, respectively, as set forth in 35 U.S.C. § 101, and

(2) that, subject to the satisfaction of the three conditions for patentability, i.e., novelty, utility, and nonobviousness, as set forth in 35 U.S.C. §§ 101-103, programmed computers and the processes by which they operate are patentable inventions.

Arguments that those inventions involved "only an abstract idea," "law of nature," or "mental step" were rejected in those cases, presumably because they are not

relevant to the requirements for patentability and because the court construed the inventions to be new, useful, and nonobvious contributions to useful arts — which ended the matter.

The issue the CCPA decided in those cases was not whether processes performable on a computer *should* be patentable, but what *is* patentable subject matter under the present statute law.

What *should* be patentable is for the Congress and not the courts to decide. And there is a reason: Congress can hold public hearings to find out what is real-life fact as distinguished from speculation of *amici* on facts not in evidence before the Court.

B. The Meaning of "Program," "Software," and "Instant Hardware"

The issues tend to be confused by semantic problems which becloud understanding.

So for purposes of this brief:

"Hardware" is the assembly of disconnected and inoperative circuits and apparatus within what is called a computer.

Before the manufacturer turns a piece of hardware loose in its customer's office, the hardware is normally rendered practicable by the use of "systems software."

The "systems software" provides a coded input via machine-readable cards or magnetic tape by which switches are set to "wire" the computer circuits so they function in the manner determined by the wiring." Thus, when the computer is asked to multiply the sine of 35° by 98, the systems software enables the computer to provide the value of the sine of 35° for the multiplication and to carry out the multiplication function.

In one common usage "program" is often applied more synonomously with "applications software," namely a series of machine-readable representations on a deck of cards or magnetic tape which establishes the circuit and operation of the computer through its ultimate processes, for example, to optimize the design of a chemical refinery which from time to time may have to accept a variety of feed stocks and may be asked to produce a variety of products.

"Software" — which is a near synonym to "program" — is a generic name for various inputs to computers, sometimes including data for storage and use in the computer operation, and switch setters whereby the computer becomes wired up for the computer work that is to be done.

Software, or computer programs, are often called "instant hardware" because, upon their input to the general purpose digital computer, they cause it automatically to make some circuit connections so that it may process electrical signals in a way determined by the connections — a way that may be old and obvious or that may be new and nonobvious. In one sense, a general purposes digital computer may be regarded as but an organized storeroom of electrical components waiting to be interconnected in a particular manner by the introduction of a program. *In re Prater*, 415 F.2d 1393, 1403, n.29 (C.C.P.A. 1969).

Thus, programming a computer is simply one technique for wiring an electrical circuit which, until the computer is reprogrammed, operates just as though the circuit was hand-wired and soldered. It is the patentability of that circuit — which is operationally the same whether hand-wired or wired automatically in response to a program — and of the process performable on a programmed computer, that have been the real issues in the so-called "computer program" or "software" patent cases.

Some *amici* advocate that a program-wired circuit cannot be patentable while the corresponding hand-wired hardware circuit may be patentable (e.g. BEMA Br. 7, n.9). But the two circuits are operationally the same. If an inventor conceives a new, useful, and nonobvious process, as to which he can build a machine that operates without programming, or as to which he can also program an existing machine, by what logic can he be granted or denied a patent on that distinction in context of the constitutional purpose to induce him to invent the process? His patent should be to the new, useful, and nonobvious process that he invented, with such machine limitations, if any, as are necessary to the performance of the process.

It should be understood clearly:

> Neither in this case nor in other cases has it ever been urged that a computer program, *per se*, is patentable.
>
> The issues have concerned the patentability of machines (e.g. computers in their programmed or "wired" states) and processes (e.g., the processes according to which computers can be made to operate by the technique of programming).

C. Structure of the Patent System

1. *"The useful arts"*

The Constitution, art. I, § 8, cl. 8, gave to Congress the power "to promote the progress of . . . useful arts." Within a year of the event of the Constitution, i.e., in 1790, and every few decades since, Congress has passed a patent law to promote the progress of the useful arts.

So what is a useful art?

Is it useful to know a better way to make a candle? Perchance Benjamin Franklin thought so.

Is it useful to know a better way to make nylon? Is it useful to know how to make rubber so we don't have to get it from rubber trees in Java? These are useful arts.

Is it useful to enable one machine, which speaks in decimal digits like a dial phone, to communicate with another machine which is controlled by a digital computer in a process for making jet engine parts?

These useful arts are to be contrasted with and distinguished from the "fine arts" of music, sculpture, and the like.

New processes for enabling one machine to talk to another machine are useful processes, whether or not they are performed on a machine of any special type.

They are the kind of useful processes that the Constitution and Title 35, U.S.C., were talking about, because they are the kind that these documents seek to induce people to invent.

2. *What is a patent, really?*

A patent is a grant of the right to preclude others from making, using, or selling for 17 years. 35 U.S.C. § 154.

By 35 U.S.C. § 261 a patent is stated to "have the attributes of personal property" — a socially favored concept — in contradistinction to the disfavored concept of "monopoly." As between the purr words "personal property" and the common slur word "monopoly," Congress chose the words "personal property" to characterize the public policy underlying the patent right to preclude others for a limited time from use and enjoyment.

Inherently there seems to be something right and socially favored in the concept that one who puts his perspiration and capital into making something new for mankind, should

enjoy a property right in the idea that his perspiration and capital produced if it is new, useful, and nonobvious. And as developed in the Appendix to this brief the patent system indeed functions for the benefit of all peoples of the nation.

Socially beneficial grants sanctioned by both the Constitution and Congress should not be disfavored in our law.

3. *Subject matter patentable*

In the constitutional authorization for the patent, the thing, the *res* of the patent's protection, is a "discovery." The Constitution refers to the discoveries of "inventors" but not to "inventions." Thus, the system in constitutional contemplation was a generally conceived system with few particulars. It was directed to all the learnings ("discoveries") of inventors (those who work at innovation) which are in the useful arts.

The Constitution did not limit the type or stature of the discovery that is patentable, so long as protecting the discovery was part of a program or system intended for the purpose of advancing the useful arts.

But Congress limited the type of *res* that could be patented to any new and useful

(1) process,

(2) machine,

(3) article of manufacture,

(4) composition of matter, and

(5) improvements on any of them. 35 U.S.C. § 101.

Congress defined "process" in language of peculiar interest to the present case:

> "'Process' means process, art or method, and includes a new use of a known . . . machine . . . ." 35 U.S.C. § 100(b).

Some courts over the years have said that a person gets the privilege of *all* uses of his machine. But Congress clarified this in 1952. Congress specifically declared otherwise as to new *non*obvious uses of a machine, for they are patentable to the discoverer of that new nonobvious use.[3]

In addition to deciding that the *res* should be a process, machine, manufacture, composition, or improvement in one of them, Congress decided also that the *res* that could be patented must be:

(1) new (35 U.S.C. § 101, 102);

(2) useful (35 U.S.C. § 101); and

(3) as a whole, not obvious to those in the art at the time that it was made (35 U.S.C. § 103).

Insofar as the stature of the innovation is concerned, novelty, utility, and nonobviousness are referred to as the three conditions for patentability. There are no others. After 160 years of experience with patents, the Congress in 1952 wrote a new statute that contained no other requirements.

---

[3] Stripped to their essentials, the briefs of some *amici* (the hardware manufacturers) advocate that this Court should carve out an exception to the statute, and deny patents on new discoveries of processes by which *certain* old machines can be used, thereby to provide unique immunity from patent infringement liability for users of *such* machines, irrespective of the user's plagiarism of discoveries by others of nonobvious and highly useful manners in which those machines may be altered or used to get the desired results.

APLA can find no reason why such machines, *i.e.*, computers, should not be treated like all other machines, since Congress expressly wrote to all machines without special exception.

4. *"Nonobviousness" is an horrendously high standard of patentability*

The most difficult part of patent law to understand is the pragmatics of the requirement for nonobviousness to those in the art. 35 U.S.C. § 103.

Just what is the level of the standard of the nonobviousness requirement of 35 U.S.C. § 103?

First note that § 102 defines the prior art.

The prior art includes foreign publications (including those in Chinese and Greek that never reach U. S. shores) that are rarely, if ever, generally known to U. S. inventors.

The prior art includes foreign patents (for example, those in Russia and South Africa) which rarely if ever are read in the United States.

It includes those college theses in the United States, Germany, and other foreign countries which enjoy printed publication only within the circles of college libraries. These are rarely, if ever, an economic place for an inventor to spend time looking for a solution to the problem facing him and/or the persons who pay his salary and finance his work. Only defendants in major patent infringement suits can afford to look for such references in pursuit of *de jure* justification of their plagiarism.

The prior art includes every prior public and commercial use which ever occurred in this country. Many of these prior uses, not being available in printed publications, cannot be known to those who put in the perspiration[4] and the capital[5] to make new inventions.

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[4] Edison commented that inventions were 99% perspiration and only 1% inspiration.

[5] Most complex scientific inventions of today are exceedingly high risk investments, often costing million of dollars to develop to the stage of market enjoyment and proving to be lost causes in a significant percentage of cases.

There are a hundred-thousand odd pending U.S. patent applications. When applications issue into patents, they become *de jure* references retroactively back to their filing date, even though they were not then available to public access and could not be used by other researchers at that time.

De jure prior art includes many reference sources which innovators cannot get at or which they cannot economically afford to use, i.e., reference sources which do not in fact give the public an in-house enjoyment of the devices in the references.

Often the courts assert that a combination of the teachings of several of these *de facto* not-available references renders a patent invalid for obviousness.

Even if a given man "knows" of all of these references (which no inventor can), it is of course impossible to conceive that an inventor could at any one time have present *cognizance* of them all. It is still more impossible that he could have such cognizance as to be able, from the millions of jig saw pieces of prior knowledge that he "knows" of, to see clearly by foresight which ones would fit together for a new combination he seeks to patent.

The standard of nonobviousness thus puts a heavy burden on the inventor *and those who finance him.*

It follows that with such a standard of patentability, there cannot be a burdensomely large hoard of patent applications or issued patents on computer process inventions.

The burden of nonobviousness requires that "the invention *as a whole*" (not just its parts) must not be obvious. Thus, the "whole" includes enough of each (i) abstract concept, and (ii) specific steps and/or structure to give

the public a practical realization of the invention. For if that "whole" is not obvious from such a collossus of *de jure* prior art, the useful arts need to be promoted before the public can enjoy ~~it.~~ the invention.

A concept, whether it be a law of nature or a principal of mathematics, that is given useful application in a machine or process is inherently either part of the prior art or part of the "invention as a whole." See 35 U.S.C. § 103. Such a concept, if never before known or enjoyed by the public, is *ipso facto* not part of the prior art against which obviousness can be measured. It therefore must be part of the invention "as a whole."

5. *There are no other requirements for patentability besides novelty, utility, and nonobviousness*

Sections 101, 102, and especially 103 (nonobviousness) were drafted in 1952 to remove the conflicts then common in the case law which contained many diverse expressions* of the requirements for patentability, including the requirements that

(1) there be synergism in the assembly of the parts;

(2) the patent not be directed to a mere use of a law of nature;

(3) the invention not be a new use of an old device; and

(4) the invention not be merely a combination of old elements.

Sections 100-103 of the 1952 Patent Act substituted nonobviousness for those and other similar requirements for patentability.[6]

[6] See Rich, *Principles of Patentability*, 28 Geo. Wash. L. Rev. 393 (1960); Rich, *The Vague Concept of "Invention" as Replaced by § 103 of the 1952 Patent Act*, 8 (Conf. No.) Idea 136 (1964).

All inventions are new uses of old devices or combinations of old elements; all inventions are applications of laws of nature. The question is *which* of those are entitled to patents.

Congress clearly provided in section 103 that the nonobvious ones — which *ipso facto* are not in the public domain — are the ones which are patentable.

This is the heart of a system that induces the invention and market development of such useful things as are not *ipso facto* yet in the public enjoyment.

As Mr. Chief Justice Burger once observed, the system is not concerned with what the individual patent does.[1] The patent system is concerned with inducing a flow of progress in all the arts and from many people.

The patent grant induces publication of secrets

And this flow of progress is effected by a series of phenomena beyond reward for successful invention and marketing. For example, the statute specifies that the patent application

> shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same. 35 U.S.C. § 112.

that full description, upon allowance of the application, is published in the patent. Thus, others may learn promptly, upon the grant of a patent, of the discovery disclosed thereby, and may build new inventions upon the old.

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[1] *Comm'r of Patents v. Deutsche Gold-Und-Silber-Scheideanstalt Vormals Roessler*, 397 F.2d 656, 667 (D.C. Cir. 1968).

That is the contract the government makes with the patentee: 17 years of protection of this *res*, not before known or enjoyed, in exchange for public disclosure *now*.

7. *The reality of patent law in action: Unbiased blue ribbon committees and individuals have consistently found that the patent system does, in fact, promote the progress of the useful arts to which it applies*

Other *amici* have implied that patents (or, as they prefer to say, "monopolies") obstruct rather than promote the progress of the subject art (BEMA Br. 9-13, 16-19; Bur. Br. 5, 17-22; Hon. Br. 17-18; IBM Br. 2,6,19).

Contrary to the positions of those *amici*, APLA feels that the incentives of the patent system work well, and work well in all useful arts. There is no need to carve out processes performable on a computer for special treatment.

There is collected, as an Appendix to this brief, a group of quotations from famous experts on the economics of innovation, from Senate committees, Presidential Commissions, and the like, many having no patent interest of their own.

They are uniformly to the effect that, in its practical application to the useful arts, the patent system is much more merit than mischief. They teach that the patent system does in fact:

(1) provide effective incentive to invest labor in invention.

(2) provide effective incentive to invest money in inventions.

(3) provide effective incentive to the development of markets for inventions, without which the public

(4) provide effective incentive to break cesspools of secrecy and to induce disclosure of new inventions so that others may build still better inventions.

(5) promote competition by facilitating the little David's competition with industrial Goliath's.

These things it does in spite of inadequate search facilities, inadequate budget for the Patent Office, imperfect patent examiners often making judgments too harsh (and, as often, too lenient) on the patent applicant.

It is beyond controversy that the incentives provided by the patent system do promote the progress of the useful arts, not hinder it.

Some, if not all, computerized processes are within the useful arts to be promoted.

Processes are clearly within the wording of the statute, which includes new use of known machine, 35 U.S.C. § 100(b).

The statute having included all processes within the useful arts, no segment thereof should be judicially carved out of what Congress intended. Specifically, there is no statutory basis for excluding a process, or a new use of a known machine, from patentability merely because the process or new use is performed in a computer.

D. Has There Been a Functioning Free and Open Exchange of Computer Program Ideas?

It is strongly urged by the hardware manufacturing *amici* that there has been rapid growth and innovation in software development in the past, because of what they allege has been an atmosphere of free and open exchange of computer program ideas. They conclude that progress

in this useful art would not be served by permitting computer-implemented processes to be patented.

However, the allegation of free and open exchange of ideas is unsupported by evidence and is questionable.

It would be interesting to determine by credible evidence, which happens not to be before the Court, whether there has not long been perchance a billion dollars worth or more of software marketed every year under some form of secrecy contract. If this be so, then there has not been a free and open exchange of ideas.

And, it would be pertinent to determine, by credible evidence not before the Court, whether the alleged free and open interchange of ideas has not been in large measure confined to that significant segment of software which the hardware manufacturers have (uniformly until recently) given away "free" as an aid in selling hardware.[4]

It would be interesting to determine whether the publication of new program ideas, which is an inherent part of obtaining a patent on them, might serve a social purpose in inducing public disclosure of program ideas now held secret.

The patent system is designed to promote disclosure of inventions to the public through issuance of patents, the patent owner retaining the temporary right to control who can use his invention. Whether or not past growth of software technology has been sponsored substantially by hardware manufacturers, its future — or that of any other useful art — should not be burdened by automatic exclusion from the benefits of patenting. The carving of excep-

[4] The biggest of the hardware manufacturers "unbundled" applications software from hardware about three years ago, but much software remains "bundled" with hardware.

tions from 35 U.S.C. § 100(b) should be left for the Congress to decide after full investigation and public hearings.

E. A Process, Otherwise Patentable, Is Not Rendered Unpatentable Because It Is Performable by a Known Machine

It has been implied and argued to this Court, in varying degrees, that

(1) a programmable process (i.e., a process according to which a general-purpose computer can, by the technique of programming, be made to operate) — even if new, useful, and nonobvious — is not patentable because it is the function of the computer, and

(2) that the lower court, by its decision in *In re Tarczy-Hornoch*, 397 F.2d 856 (C.C.P.A. 1968), has somehow rejected certain doctrines established by this Court respecting the patentability of machine processes.

That neither of those arguments has any merit is most effectively demonstrated by *Tarczy-Hornoch* itself and the scholarly research and analysis of Examiner-in-chief Bailey of the Patent Office Board of Appeals in his opinions in *Ex parte Goldsmith*, 94 *U.S.P.Q.* 403, 405 (1952), *Ex parte Symons*, 134 U.S.P.Q. 74 (1962), and *Ex parte Packard*, 140 U.S.P.Q. 27, 34 (1963).

Finally, it should be remembered that 35 U.S.C. § 100(b) specifically defines patentable processes to include processes performable by a machine:

> "The term 'process' . . . includes a new use of a known . . . machine . . . ."

If the invention here in issue is a process performable on a machine, it is clearly not to be excluded for that reason alone.

F. Patent Office Collection and Classification of Prior Art

Petitioner and other *amici* urge that programmable processes should be unpatentable because the Patent Office has not, at present, adequately collected or classified the prior art (Pet. Br. 17, 30-33; BEMA Br. 14, n. 19, 23-24; Bur. Br. 19-20; Hon. Br. 18).

Computer process inventions are as readily classifiable as other process inventions.

For example: here, the invention can be classified as a method for converting BCD to binary, just as readily as a process for annealing glass can be classified for what it is. See, e.g., the Patent Office Manual of Classification, Class 340, Subclass 347, entitled "Code Converters (e.g. Rapid to Slow, *Decimal to Binary*)" (emphasis added).

The Patent Office can be depended upon to set up classifications for, and collect the art in, the processes of operating a computer in the same degree of thoroughness that it brings to other process arts.

In all events, the failure of the Patent Office, perhaps due to inadequate budgets or the like, to perform fully an administrative function, is not a proper *legal* ground for changing the law which Congress has enacted.

G. The Patentability of Programmed Computers and/or Programmable Processes in Foreign Countries Is Wholly Irrelevant to that Issue in this Country

Petitioner and other *amici* have suggested or urged that the incentives of the patent system should be denied insofar as programmable processes are concerned because certain foreign countries have held programmable processes unpatentable under their foreign patent laws (Pet. Br. 33, n. 33, BEMA Br. 26-28; IBM Br. 26-29).

However, many of the foreign countries whose patent offices or courts have made a detailed and thorough analysis of the issue, such as West Germany, Great Britain, and Canada, have plainly held that programmed computers and/or programmable processes *do* constitute patentable subject matter. But neither that fact, nor the fact that some other countries may have reached the opposite result, has any bearing on this case.

H. Patent Protection Is Not Precluded by the Existence of Copyright Protection Even Assuming Arguendo that the Latter Exists

Petitioner and certain *amici* have suggested or argued that computer programs may be copyrighted and that, *ipso facto*, programmed computers and programmable processes either cannot or should not be patented or patentable (Pet. Br. 33, n. 32; IBM Br. 30-31; Bur. Br. 22-23; BEMA Br. 29-30; Hon. Br. 16, n. 25).

But it has already been firmly established that patent and copyright protection are *not* mutually exclusive. In *Mazer* v. *Stein*, 347 U.S. 201, 216-17 (1954), this Court squarely rejected the argument "that overlapping of patent and copyright legislation so as to give an author or inventor a choice between patents and copyrights should not be permitted," expressly stating:

> the patentability of the statuettes, fitted as lamps or unfitted, does not bar copyright as works of art. Neither the Copyright Statute nor any other says that because a thing is patentable it may not be copyrighted. We should not so hold.

The decision in *Mazer* was based upon the recognition that patents and copyrights confer quite different forms of pro-

tection[9] and that there are sharply different tests for patent and copyright validity.[10] 347 U.S. at 217-18. See also, *Baker* v. *Selden*, 101 U.S. 99 (1879).

Indeed, as applied to the computer field, the copyright laws may preclude another, for up to 56 years, from the copying of a writing (e.g., the set of coded instructions embodied in a computer program) which is merely original; on the other hand, the patent law may preclude another for only 17 years from the making, using, or selling of a machine (e.g., programmed computer) and/or a process (e.g., the method of operation of a programmed computer)[11] if the machine and/or process are new, useful, and nonobvious.

Moreover, the viability of computer program copyrights is entirely speculative. In the absence of a single decided case respecting computer program copyrights, a myriad of unresolved legal issues hang as a foreboding cloud over copyright protection for software.[12] However, since those

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[9] *E.g.*, an absolute right to exclude others from practicing an art or process, for example, as may be conferred by a patent, versus a right to preclude only the copying of the mere form of expression of an idea as may be conferred by a copyright.

[10] *E.g.*, the stringent novelty and nonobviousness tests for the patentability of inventions, versus the more relaxed originality test for copyrightability of writings.

[11] The patent statute expressly defines "process" as also including "a new use of a known . . . machine." 35 U.S.C. § 101(b).

[12] *E.g.*, whether computer programs, at least when presented in certain forms, are "writings" or "copies" within the meaning of the Copyright Act. Compare Petitioner's, BEMA's, and Burroughs' analogy of a computer program to a punched paper tape or roll for a player piano (Pet. Br. 26; BEMA Br. 8; Bur. Br. 23, n. 44), with *White-Smith Music Co.* v. *Apollo Co.*, 209 U.S. 1 (1908), holding that a player piano roll was not copyrightable.

See also, Brown Instrument Co. v. *Warner*, 161 F.2d 910, 911 (D.C. Cir.), *cert. denied*, 332 U.S. 801 (1947)("[a]rticles intended for practical use in conjunction with a machine are

issues are not now before the Court, suffice it to say that there is absolutely no support for the bald assertion that copyright *protection* — as contrasted with copyright *registration*[13] — is presently available for computer programs, much less for machine-performable processes as are here in issue.

I. The Pending Extra-Congressional Considerations of New, Tailor-made Proprietary Rights for Computer Programs Are Irrelevant to the Issue of Patentable Subject Matter

Admittedly, a number of individuals, companies, and bar groups have recommended and are studying the feasibility of a new statutory law granting a specific, tailor-made proprietary right for computer programs (BEMA Br. 29, 31; Bur. Br. 24; IBM Br. 31-33).

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not copyrightable"); Ringer & Gitlin, *Copyrights* 17-18 (rev. ed. 1965):

> Devices for measuring, computation, or use in conjunction with a machine frequently contain printed matter, such as numbers, letters, words, calibrations, or graphic material arranged in certain ways. Material of this sort is not subject to copyright since it is necessarily dictated by the method or principle underlying the device, and lacks the creative expression that is essential to original authorship.

[13] Even though copyright *registration* may be a prerequisite to to the maintenance of a copyright infringement action, *Vacheron & Constantine-LeCoultre Watches, Inc.* v. *Benrus Watch Co.*, 260 F.2d 637 (2d Cir. 1958), copyright *protection* is secured, if at all, merely by publication with the statutory notice, not by registration. 17 U.S.C. § 10; *Washingtonian Publishing Co.* v. *Pearson*, 306 U.S. 30, 39 (1939). Unlike a patent, which is a government grant made by the Commissioner of Patents after a careful examination, a copyright registration is not a grant; and the Register of Copyrights performs merely ministerial duties in contrast with the judicial and discretionary functions performed by the Commissioner of Patents. *Vacheron, supra*, 260 F.2d at 645. Thus, the Copyright Office has a policy of resolving doubtful issues in favor of registration wherever possible; and, on that basis only, have registrations of copyright for computer programs been issued — leaving the legal issues for subsequent judicial determination. *Copyright Office Circular No. 61*, May, 1969.

But the new forms of protection under consideration are primarily for protection of nonpatentable (e.g., obvious) computer programs as such, by contrast with nonobvious machine-performable processes here in question. At least some if not all of those proposals do not pre-empt or replace, but rather embrace and rely upon, the patentability of nonobvious programmable processes within the useful arts.

The law *is* as Congress has *already* written it, not as one may hope Congress may write it in the future. Today, the only clear statutory protection in this area is for new, nonobvious processes in the useful arts. 35 U.S.C. §§ 100-103.

CONCLUSION

A process which meets the requirements of the statute, 35 U.S.C. §§ 101-103, is patentable irrespective of whether it is a process performable on a computer.

A process which is otherwise patentable subject matter should not be excluded from patent protection merely because it can be performed by a computer.

Whatever the Court's disposition of the case before it, those principles should be clearly preserved in the Court's opinion.

Respectfully submitted,

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APPENDIX

The Patent System Promotes the Progress of Useful Arts

The 1966 *Report of the President's Commission on the Patent System* stated, at pages 1-3:

> The United States patent system is an institution as old as the Nation itself. Stemming from a Constitutional mandate, patent acts were passed in 1790, 1793, and 1836. The Act of 1836 established the pattern for our present system by providing statutory criteria for the issuance of patents and requiring the Patent Office to examine applications for conformance thereto. Although the law has been amended on numerous occasions — and even rewritten twice since 1836 — no basic changes have been made in its general character in the succeeding one hundred and thirty years.
>
> . . . .
>
> Agreeing that the patent system has in the past performed well its Constitutional mandate "to promote the progress of . . .useful arts," the Commission asked itself: What is the basic worth of a patent system in the context of present day conditions? The members of the Commission unanimously agreed that a patent system today is capable of continuing to provide an incentive to research, development, and innovation. They have discovered no practical substitute for the unique service it renders.
>
> First, a patent system provides an incentive to invent by offering the possibility of reward to the inventor and to those who support him. This prospect encourages the expenditure of time and private risk capital in research and development efforts.
>
> Second, and complementary to the first, a patent system stimulates the investment of additional capital needed for the further development and marketing of the invention. In return, the patent owner is given the right, for a limited period, to exclude others from

making, using, or selling the invented product or process.

Third, by affording protection, a patent system encourages early public disclosure of technological information, some of which might otherwise be kept secret. Early disclosure reduces the likelihood of duplication of effort by others and provides a basis for further advances in the technology involved.

Fourth, a patent system promotes the beneficial exchange of products, services, and technological information across national boundaries by providing protection for industrial property of foreign nationals.[1]

See also, Bush, "Proposals for Improving the Patent System," *Study of the Subcomm. on Patents, Trademarks, and Copyrights of the Senate Committee on the Judiciary*, 84th Cong., 2d Sess. 1 (1956):

Those who built the governmental structure under which we live were exceedingly wise, and they were particularly so when they created a strong patent sys-

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[1] Reprinted as S. Doc. No. 5, 90th Cong., 1st Sess. 9-11 (1967). Although the Commission recommended, for *policy* reasons not relevant to the present *legal* issue, a legislative *change* to exclude programmed computers and/or their processes from the patent system (Recommendation IV), it yet remains to be seen, after extensive public hearings subsequently held by Congress, why the above-quoted attributes of the patent system are not equally applicable to *all* segments of the useful arts, including programmed computers and their processes. Indeed, the patent law revision bills originally introduced prior to the congressional hearings included a provision implementing Recommendation IV. See Section 106, S. 1042, 90th Cong., 1st Sess. (1967). But, after congressional hearings, and after the Court of Customs and Patent Appeals made it clear in this and other cases that programmed computers and their processes *are* within the statutory classes of patentable subject matter, the recent patent law revision bills have omitted the provision excluding programmed computers and/or their processes from patent protection. S. 643 Comm. Print., 92d Cong., 1st Sess. (Oct. 20, 1971).

tem based on the Constitution. It has three great objectives:

First, it aims to stimulate both invention and the assiduous search for new applications of knowledge, which is the basis of invention. It does this by placing the inventor in a position to secure a reward.

Second, it seeks to create conditions whereby the venture of funds to finance the hazardous introduction into public use of new devices or processes will be warranted. This is done by protecting the industrial pioneer for a limited time against the uncontrolled competition of those who have not taken the initial financial risk.

Third, it aims to prevent the creation of an industry permeated by the intense secrecy with regard to its processes which characterized the medieval guilds and which can only retard the realization by the public of the benefits of scientific progress. This it does by extending a temporary monopoly to those who, in keeping with the American ideal of openness and frankness, will make a full disclosure of their new ideas so that they may be utilized to the full by those skilled in a particular art. [Footnotes omitted]

as well as the 1943 Report of the National Planning Commission, excerpted in Smith, *Patent Law* 39-40 (rev. ed. 1964):

The National Patent Planning Commission* First Report (1943) includes the following conclusions:

"The American patent system established by the Constitution giving Congress the 'power to promote the progress of science and useful arts,' is over 150 years old. The system has accomplished all that the framers of the Constitution intended. It is the only provision of the government for the promotion of invention and discovery and is the basis upon which our entire industrial civilization rests.

"The American people and their government should recognize the fundamental rightness and fairness of protecting the creations of its inventors by the patent grant. The basic principles of the present system should be preserved. The system has contributed to the growth and greatness of our nation; it has:

(1) encouraged and rewarded inventiveness and creativeness, producing new products and processes which have placed the United States far ahead of other countries in the field of scientific and technological endeavor;

(2) stimulated American inventors to originate a major portion of the important industrial and basic inventions of the past 150 years;

(3) facilitated the rapid development and general application of new discoveries in the United States to an extent exceeding that of any other country;

(4) contributed to the achievement of the highest standard of living that any nation has ever enjoyed;

(5) stimulated creation and development of products and processes necessary to arm the nation and to wage successful war;

(6) contributed to the improvement of the public health and the public safety; and

(7) operated to protect the individual and small business concerns during the formative period of a new enterprise." (pp. 783-84)

The Commission comprised Dr. Charles F. Kettering, Chairman of the National Inventors' Council and Vice-President of General Motors Corporation in charge of its Research Laboratories; Chester C. Davis, Member of the Board of Governors of the Federal Reserve System; Francis P. Gaines, President of Washington and Lee University; Edward F. McGrady, formerly First Assistant Secretary of Labor, then in charge of Labor Relations for Radio Corporation of America; Owen D. Young, Honorary Chairman of the Board of the General Electric Company and Member of the Board of Directors of Radio Corporation of America, the National Broadcasting Company, and the Federal Reserve Bank of New York City; Audrey A. Potter, Executive Director; and Conway P. Coe, then Commissioner of Patents, Executive Secretary.

and the 1966 Report of the Attorney General's National Committee to Study the Antitrust Laws, at pages 224-25:

> The private reward of the patent grant aims to achieve its public purpose in a number of ways. Prominent among these is the encouragement of the early disclosure of patentable inventions — and their ultimate availability to the public upon expiration of the patent. The offer of patent protection thus serves to head off the secrecy that might otherwise blanket the use of the invention. Second, the patent system seeks to achieve its public purpose by encouraging investment of risk capital. This is accomplished by affording a market within which the patent owner can invest and induce others to invest without fear of competition. New products and processes have always entailed competition. New products and processes have always entailed substantial investment at considerable risk. In recent years the expenditures required to this end have increased. By protecting such investment — and thereby encouraging new technologies — the patent seeks to increase competition by what is superficially an inconsistent grant of monopoly, but is in fact a mechanism intended to assure competition in invention. [Footnotes omitted.]

Indeed, the patent system promotes progress in the useful arts "by stimulating inventive activity, by bringing about a disclosure of the results of that activity, and by encouraging investment in the production and marketing of inventions as well as in research and development." Rich, *Principles of Patentability*, 28 Geo. Wash. L. Rev. 393, 400-01 (1960). "The patent law is an incentive system." Rich, *Infringement Under Section 271 of the Patent Act of 1952*, 35 J. Pat. Off. Soc'y 476, 477-78 (1953).

A. *By Providing Incentive to Invent*

As early as 1890, *Robinson on Patents*, § 20, stated:

> The grant of an exclusive privilege to the inventor

> is intended to advance the interest of the public, not by securing to it the knowledge and the use of that particular invention, but by rewarding the inventor and thus stimulating him, as well as others, to new efforts. . . .

As stated by Congressman Roudebush, 108 Cong. Rec. 2303-04 (1962):

> [T]he industrial supremacy enjoyed by the United States in a large part is attributable to well conceived patent laws which have stimulated creativity since our Republic was founded.
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> . . . .
>
> . . . . [A patent] is a reward for the invention of a product or process which never existed previously. It does not grant any rights to an individual with respect to existing products or processes. Our Founding Fathers believed that the granting of a patent by the Government which confers certain exclusive rights upon the inventor for a limited time promotes the urge to create and discover for the benefit of everyone.

None other than Abraham Lincoln said, "The patent system . . . secured to the inventor, for a limited time, the exclusive use of his invention; and thereby added the fuel of *interest* to the fire of genius, in the discovery of new and useful things." 3 *The Collected Works of Abraham Lincoln* 361 (R. Basler ed. 1953).

This Court, in *Mazer v. Stein*, 347 U.S. 201, (1954), opined:

> The economic philosophy behind the clause empowering Congress to grant patents and copyrights is the conviction that encouragement of individual effort by personal gain is the best way to advance public welfare through the talents of authors and inventors in "Sci-

ence and useful Arts." Sacrificial days devoted to such creative activities deserve rewards commensurate with the services rendered.

b. *By Providing Incentive to Disclose Inventions*

In *Sinclair & Carroll Co.* v. *Interchemical Corporation*, 325 U.S. 327, 330-31 (1945), this Court said:

> The primary purpose of our patent system is not reward of the individual but the advancement of the arts and science. Its inducement is directed to disclosure of advances in knowledge which will be beneficial to society; it is not a certificate of merit, but an incentive to disclose. [Footnote omitted.]

See also *Robinson on Patents* § 39 (1890):

> [The patent system] removes from the inventor all inducement to conceal his discovery, by affording him the same protection that could be obtained by the most rigid secret. It encourages him to make known his results, as the method of securing for himself the largest recompense. It compels him to acquaint the public, thoroughly and at the outset, with all the details of his invention and with the various modes of benefiting by its use.

As Rich, *Principles of Patentability*, 28 Geo. Wash. L. Rev. 393, 400 (1960), points out,

> *patented* inventions are published and become a part of the technical literature. Thus publication itself promotes progress in useful arts and it is the prospect of patent rights which makes it available. Whenever novel subject matter, unobvious to workers of ordinary skill in the art, is published, progress in the art is promoted. The literature of the art is enriched, another way of doing something is known . . . .

Thus, one of the fundamental attributes of the patent system is to encourage disclosure of inventions. It stretches

redulity to even suggest that the patent system is the ause, rather than cure, of the secrecy that presently pre- ails with respect to programmable processes.

C. *By Providing Incentive to Invest In Making Inventions and Bringing Them to Fruition, Thereby Stimulating Competition*

Judge Frank, in his now famous concurring opinion in *Picard v. United Aircraft Corp.*, 128 F.2d 632, 642-43 (2d Cir., *cert. denied*, 317 U.S. 651 (1942), understood the value of patents

> which, through hope of rewards to be gained through such a monopoly, will induce venturesome investors to risk large sums needed to bring to the commercially useful stage those new ideas which require immense expenditures for that purpose.
>
> . . . .
>
> But if we never needed, or do not now need, patents as bait for inventors, we may still need them, in some instances, as a lure to investors. It is sometimes said that there is no need thus to coax investors because our giant corporations, with their research laboratories, will, without such bait, do the needful. The answer perhaps is that industrial history discloses that those corporations at times and to some extent, have been prodded into undertaking such research and into developing improvements because of the threat of competition from occasional "outsiders,"* armed with patent monopolies, and supplied with funds by a few enterprisers. Thus, paradoxically, monopoly may evoke competition: The threat from patent monopolies in the hand of such "outsiders" may create a sort of competition — a David versus Goliath competition — which reduces the inertia of some huge industrial aggregations that might otherwise be sluggish.

* By "outsiders" I mean persons outside the giant corporations.

I happen to know of one inventor who, together with his friends, spent many thousands of dollars and years of effort in bringing to the stage of practical utility a patent that markedly advanced the art in an industry the major established components of which were uninterested in new processes. Without those large financial outlays — which would not have been made but for the hope of acquiring a valid patent monopoly — the public, in all liklihood, would have been deprived of very real and substantial benefits. It would seem to be both unfair and unwise to apply so severe a test of invention as to render such a patent invalid.

. . . .

And so patent monopolies may still be socially useful; they may, indeed, as I have said, foster competition. The David Co. v. Goliath, Inc. kind of competition is dependent on investment in David Co. — the small new competitor. And few men will invest in such a competitor unless they think it has a potential patent monopoly as a slingshot. [Selected footnotes omitted.]

See 1 Deller, *Walker on Patents* § 8 (2d ed. 1964), which egins, "The granting of patents is a potent force in the ompetitive enterprise system." In addition to competition rom existing noninfringing inventions, a patented inven- ion often stimulates new inventions resulting from efforts o design around the patent. Witness the photocopying art, ecognized for its patent coverage, and the vigorous com- etition as, for example, Xerox brought to Thermofax, and BM has recently brought to Xerox. Patents are good, not ad, monopolies which stimulate, rather than stifle, com- etition. *Sears, Roebuck & Co.* v. *Stiffel Co.*, 376 U.S. 225, 30-31 (1964); *James P. Marsh Corp.* v. *United States ouge Co.*, 129 F. 2d 161, 165 (7th Cir. 1942); Rich, *The ague Concept of "Invention" as Replaced by § 103 of the 952 Patent Act*, 8 (Conf. No.) Idea 136, 139 (1964).

Harvard University Professor of Economics Wassily W. Leontief, in his introduction to Silk, *The Research Revolution* (1960) states:

> This unlimited, universal availability of knowledge and ideas produced by research is certainly a very desirable property for the society, for mankind as a whole. But it creates a serious problem for anyone who would like to engage in research, i.e., in the production of knowledge as a business enterprise. To justify investment in research a corporation must be able to sell its results directly — or indirectly, as a component part of some other product, for a price. But who would pay for a good which, once it has been produced, becomes available to everyone in an unlimited amount? Why not wait until someone else pays for it or invests in its production and then have a free ride?
>
> The patent, the copyright, and the licensing laws take care of this. They provide the quantity dimensions for objects which intrinsically have none and thus make it possible for private enterprise to engage in the production of ideas and new knowledge and sell or use them profitably as one can use or sell steel or bread. This is an ingenious and, so far as it goes, a very effective solution of the problem; unfortunately, it is not quite effective enough. Under the patent and license system, the range of practical applications of new ideas is necessarily narrower than it otherwise could have been, and the total volume of human and material resources devoted to production of useful knowledge is necessarily smaller than it should be.

Similarly, Professor Gustave Drews in his 1951 book, *The Patent Right in The National Economy of the United States*, at page 130 observed:

> When it comes to marketing an invention which requires so-called risk money, particularly if the inventor is a man of limited means, the general opinion has been for years that a patent on the invention is very desirable, if not absolutely necessary.

See also, *In re Anthony*, 414 F.2d 1383, 1397-98 (C.C.P.A. 69), and the testimony of General Motors vice president harles F. Kettering, *Hearings Before the U.S. Temporary ational Economic Committee on the Investigation of Con- ntration of Economic Power*, pt. 2, at 341-45 (December 16, 1938).